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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.				
10/665,352	09/22/2003	Eric Lescouet	1483-29	4925				
<div>23117 7590 10/12/2007 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203</div>								
<div>EXAMINER WILSER, MICHAEL P</div>								
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/665,352

Applicant(s)

LESCOUET ET AL.

Examiner

Michael Wilser

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 July 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 7/26/07.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

1. Claims 1-31 are pending in this application.

Drawings

2. The drawings are objected to because Figures 7, 8, 9a, and 9b include areas of shading on the drawing sheets, which does not allow for one to follow the drawings since there appears to be words or numbers hidden by the darkened areas. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the

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applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohno et al. (EP 1,162,536) in view of Solomon (US 6,269,409).

5. As per Claim 1, Ohno teaches the invention substantially as claimed including a method of enabling different operating systems to run concurrently on the same computer (column 1, paragraph 1) comprising:

a. selecting a first operating system to have a relatively high priority (column 4, paragraph 14);

b. selecting a second operating system to have a relatively lower priority (column 4, paragraph 13); and

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c. providing a common program arranged to switch between and control the operating systems (column 2, paragraph 6).

6. However, Ohno does not explicitly disclose that the common program is arranged to pass interrupts intended for the first and second operating systems to the first operating system and that the first operating system is arranged to process interrupts intended for the first operating system and to pass interrupts intended for the second operating system back to the common program for forwarding to the second operating system. However, Solomon discloses a method in which the common program is arranged to pass interrupts intended for the first and second operating systems to the first operating system (column 4, lines 36-45) and that the first operating system is arranged to process interrupts intended for the first operating system and to pass interrupts intended for the second operating system back to the common program for forwarding to the second operating system (column 4, lines 42-57).

7. It would have been obvious to one of ordinary skill in the art at the time of invention to have passed all interrupts to the first operating system in Ohno's invention and have the ones for the second operating system passed back. One would have been motivated to pass all interrupts so that the primary operating system would get all of the interrupts and would not have to unnecessarily be switched back and forth between the two operating systems, this would allow for more efficient processing by not always

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switching and having the first operating system pass back the interrupts intended for the second operating system.

8. As per Claim 2, Ohno further discloses that the first operating system is a real-time operating system (column 4, paragraph 14).

9. As per Claim 3, Ohno further discloses that the second operating system is a non-real time, general purpose operating system (column 4, paragraph 13).

10. As per Claim 4, Ohno further discloses that the second operating system is a Linux system or variant thereof (column 4, paragraph 13).

11. As per Claim 5, Ohno further discloses that the common program is arranged to save and restore the processor state required to switch between the operating systems (column 2, paragraph 6).

12. As per Claim 6, Ohno further discloses that processor exceptions for the second operating system are handled by the common program (columns 9 & 10, paragraphs 31-34).

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13. As per Claim 7, Ohno further disclose that the common program intercepts processor exceptions and calls exception handling routines of the operating system to service them (columns 3 & 4, paragraph 12).

14. As per Claim 8, Ohno further discloses that the processor exceptions for the second system are notified as virtual exceptions (columns 9 & 10, paragraphs 31-34).

15. As per Claim 9, Ohno further discloses that the common program is arranged to call the exception handling routine of the second system corresponding to the pending exception (column 9 & 10, paragraphs 31-34).

16. As per Claim 10, Ohno further discloses that each operating system has separate memory spaces in which each can exclusively operate (column 2, paragraph 7).

17. As per Claim 11, Ohno further discloses that the systems have an I/O device that is exclusive to that system (column 5, paragraph 18).

18. As per Claim 12, Ohno further discloses that each operating system accesses the I/O devices through native routines (column 5, paragraph 19).

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19. As per Claim 13, Ohno further discloses that each operating system has access to a second I/O device which is shared between the systems (column 5, paragraph 18).

20. As per Claim 14, Ohno further discloses that all systems access the second I/O device through routines of the first system (column 5, paragraph 19).

21. As per Claim 15, Ohno further discloses that a restart routine is provided for restarting the second system without interrupting operation of the first system or the common program (column 2, paragraph 6).

22. As per Claim 16, Ohno further discloses that the common program provides mechanisms to control the second system and to notify the first system of status changes in the second (column 2, paragraphs 6 & 7).

23. As per Claim 17, Ohno further disclose that the common program stores a copy of the system kernel of the second system and is arranged to restore the kernel of the second system from a saved copy (column 2, paragraph 6).

24. As per Claim 18, Ohno further discloses that the first and second system have cooperating routines to enable the first system to monitor the second and detect crashes of the second system (column 2, paragraphs 6 & 7).

25. As per Claim 19, Ohno further discloses that the common program is arranged to output machine state variables on occurrence of predefined conditions in the operating systems (column 11, paragraph 37).

26. As per Claim 20, Ohno further discloses of combining the operating systems and common program into a single code packet (column 7, paragraph 27).

27. As per Claim 21, Ohno further discloses of embedding the operating systems and common program onto persistent memory (column 7, paragraph 27).

28. As per Claim 22, Ohno further discloses that the common program is arranged to provide inter-operating system communication allowing communication between the first and second operating systems or applications running on the first and second operating systems (column 2, paragraph 7).

29. As per Claim 23, Ohno further discloses that the common program defines I/O devices corresponding to bus bridges so that the operating system can communicate via a communication bus (column 12, paragraph 40).

30. As per Claim 24, Ohno further discloses of adding driver routines to manage bus bridge devices (column 12, paragraph 40).

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31. As per Claims 25 & 27-28, they are rejected for the same reason as Claim 1 above.

32. As per Claim 26, it is rejected for the same reason as Claim 20 above.

33. As per Claim 29, Ohno further discloses of the system performing a method of:

- a. selecting a first operating system to have a relatively high priority (column 4, paragraph 14);
- b. selecting a second operating system to have a relatively lower priority (column 4, paragraph 13);
- c. providing a common program arranged to switch between the operating systems under predetermined conditions (column 2, paragraph 6); and
- d. providing modification to first and second operating system to allow them to be controlled by the common program (column 2, paragraph 6).

34. As per Claim 30, Ohno further discloses that each operating system is provided with an idle routine (column 4, paragraph 15).

35. As per Claim 31, Ohno further discloses that the idle routine substitutes for a processor halt instruction (column 4, paragraph 15).

Response to Arguments

36. Applicant's arguments with respect to claims 1-31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

37. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Wilser whose telephone number is (571) 270-1689. The examiner can normally be reached on Mon-Fri 7:30-5:00 EST (Alt Fridays Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


MPW
October 9, 2007


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